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Assessment of early tumor response to cisplatin monotherapy in patients with standard risk hepatoblastoma

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Introduction. Hepatoblastoma is the most common primary malignant liver tumor in children. Implementation of protocols for risk-adapted therapy may de-escalate therapy in the group of standard risk patients with preservation of the effectiveness of treatment.

Aim. To assess the dynamics of tumor response to cisplatin monotherapy in the group of standard risk patients with hepatoblastoma treated in the Federal Scientific and Research Center of Pediatric Hematology, Oncology and Immunology named after Dmitriy Rogachev.

Materials and methods. The study included 21 patients of standard risk hepatoblastoma treated during the period 01.2012–09.2015 (45 months). The diagnosis was based on histological examination. Staging was according to the PRETEXT system. Patients were treated according to SIOPEL-3 SR protocol, including single-agent cisplatin (4 courses of neoadjuvant therapy and 2 courses of adjuvant therapy). Assessment of the level of alpha-fetoprotein (AFP) and volume of tumor (cm^3) was done at diagnosis and after the 2nd course of chemotherapy.

Results. 16 patients were included in the assessment of the dynamics of the response. Male to female ratio was 0.6:1. The median age at diagnosis was 6.3 months (range 0.1–36.9 months). The distribution for PRETEXT stages: stage I – 2 (12.5 %) patient; II – 12 (75.0 %), III – 2 (12.5 %).

The median AFP level at diagnosis ($n = 16$) was 329.741 (range 847–1.971.991), after 2 courses of cisplatin ($n = 16$) – 20.229 (range 211–181.400) ($P = 0.0006$). The decrease in AFP levels of ≥ 1 log was observed in 11 (68.7 %) patients, less than 1 log – in 4 (25.0 %) patients, increase in the level of AFP is detected in 1 (6.3 %) case. Estimation of the volume of the tumor at diagnosis ($n = 16$): median 332 cm3 (range 180-970), after 2 cycles of chemotherapy ($n = 16$): median 230 cm^3 (range 15–800) ($P = 0.001$). All patients continued scheduled therapy. The patient with increasing values of the AFP was transferred to the intensified therapy according to the SIOPEL-4 protocol.

The median duration of follow-up was 18.7 months (range 5.8–36.2 months). All 16 patients are alive without any events.

Conclusion. The findings suggest that cisplatin as monotherapy is effective in the treatment of standard risk hepatoblastoma. The decrease in the level of AFP is less than 1 log after 2 courses of treatment with cisplatin should not be considered as a criterion of intensification therapy.